AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-9 (Canceled)

Claim 10 (Currently Amended): A method for measuring of an electrical complex impedance of an object using periodic ~~non~~ non-sine wave signals, the method comprising:

applying an excitation signal to the object; and

measuring a response signal from the object to the excitation signal using synchronous demodulation, ~~whereas~~ wherein both the excitation signal and a reference signal driving a synchronous detector are generated from a rectangular wave~~s~~, and both the excitation signal and the reference signal~~s~~ ~~having~~ have constant value sections, and

generating a first modified signal by modifying either ~~wherein~~ said excitation signal or said reference signal ~~is modified~~ so that constant value sections of said first modified signal are shortened by a predetermined first time interval, during which said first modified signal has different constant value from the constant value sections of said first modified signal.

Claim 11 (Previously Presented): The method according to claim 10, wherein said predetermined first time interval is selected so that the 3rd harmonic of said first modified signal is suppressed.

Claim 12 (Previously Presented): The method according to claim 11, wherein said predetermined first time interval equals to about approximately $\pi/6$.

Claim 13 (Currently Amended): The method according to claim 10, further comprising generating a second modified signal by modifying ~~wherein the other signal~~ a signal selected from the group of signals not modified to generate said first modified signal consisting of said excitation signal and said reference signal ~~is also modified~~ so that the constant value sections of ~~that~~ the second modified signal ~~are~~ is shortened by a predetermined second time interval during which said second modified signal has different value from the constant value sections of said second modified signal.

Claim 14 (Currently Amended): The method according to claim 13, wherein said second modified signal has value of zero during said predetermined ~~first~~ second time interval.

Claim 15 (Previously Presented): The method according to claim 13, wherein said predetermined second time interval is selected so that the 5th harmonic of said second modified signal is suppressed.

Claim 16 (Previously Presented): The method according to claim 15, wherein said predetermined first time interval equals to about π /10.

Claim 17 (Previously Presented): The method according to claim 10, wherein said first modified signal has a value of zero during said predetermined first time interval.

Claim 18 (Currently Amended): A device for measuring of an electrical complex impedance of an object, comprising:

first generator for generating an excitation signal, wherein the excitation signal is modified rectangular wave signal, wherein the excitation signal has constant value sections, that are shortened by a first time interval

during each half period of the excitation signal to suppress higher harmonics of the excitation signal;

second generator for generating a reference signal, wherein the reference signal is modified rectangular wave signal, wherein the reference signal has constant value sections, that are shortened by a second time interval during each half period of the reference signal to suppress higher harmonics of the reference signal; and

a synchronous detector, having a first input, and a reference input, wherein the excitation signal is applied to an input of the object, a response signal is received from an output of the object through the first input of the synchronous detector, and the reference signal is applied to the reference input.

Claim 19 (Previously Presented): The device according to claim 18, wherein a phase shift between the excitation signal and the reference signal is 90°.

Claim 20 (Previously Presented): A device for measuring of an electrical impedance, of an object, comprising:

an in-phase and a quadrature measurement channels;

a generator of driving signals;

a circuit of an excitation signal, the output of which is connected to an input of the object, wherein first and second outputs of the generator of driving signals are connected to inputs and of reference circuits of synchronous detectors , wherein the generator of driving signals comprises a generator of quadrature signals and two formers of the bipolar rectangular signals;

the circuit of the excitation signal comprises a device for generating a shortened pulse , the control input of which is connected to the output of the auxiliary signal of the generator of quadrature signals, the input is connected to the output of the former of the bipolar rectangular signal, and the output is connected to the input of the bio-object ;

the reference voltage circuit of the synchronous detector of the in-phase measurement channel comprises a device for generating of shortened pulse is introduced, the control input of which is connected to the output of the auxiliary signal of the generator of quadrature signals, the input is connected to the output of the former of the bipolar rectangular signal, and the output is connected to the reference input of the synchronous detector;

the reference circuit of the synchronous detector of the quadrature measurement channel comprises a device for generating of shortened pulse, the control input of which is connected to the output of the auxiliary signal of the generator of quadrature signals, the input is connected to the output of the former of the bipolar rectangular signal, and the output is connected to the reference input of the synchronous detector.

Claim 21 (Previously Presented): The device according to claim 20, wherein the generator of quadrature signals comprises a shift register of predetermined bit length and the quadrature triggers.

Claim 22 (Previously Presented): The device according to claim 21, wherein the switching multiplier in the synchronous detectors is implemented on the basis of digital techniques.

Claim 23 (Previously Presented): The device according to in claim 20, wherein the synchronous detectors are implemented on the basis of an analog multiplier.

Claim 24 (Previously Presented): The device according to claim 20, wherein the synchronous detectors are implemented on the basis of a switching multiplier.

Claim 25 (Previously Presented): The device according to claim 23, wherein the switching multiplier in the synchronous detectors is implemented on the basis of mixed signal analogue /digital techniques.